I CLAIM:

1. A metal material as laser marked by a thermally activated, chemically based marking method comprising the steps of:

applying a layer of mixed metal oxide material containing an energy absorbing enhancer to a metal substrate; and

irradiating said layer with a radiant energy beam having a wavelength selected to excite the energy absorbing enhancer in accordance with the form of a marking to be applied, thereby forming a marking layer atop the substrate.

2. A substrate material as laser marked by a thermally activated chemically based marking method comprising the steps of:

applying a layer of mixed metal oxide material containing an energy absorbing enhancer to a substrate selected from the group consisting of aluminum, brass, chrome, copper, nickel, steel, stainless steel, tin, glass, ceramic, porcelain, and plastic; and

irradiating said layer with a radiant energy beam having a wavelength selected to excite the energy absorbing enhancer in accordance with the form of a marking to be applied, thereby forming a marking layer atop the substrate.

3. A substrate material as laser marked by a thermally activated chemically based marking method comprising the steps of:

applying a layer of mixed metal oxide material containing an energy absorbing enhancer to a substrate to be marked in the form of a marking to be applied; and

irradiating said layer with a radiant energy beam having a wavelength selected to excite the energy absorbing enhancer, thereby forming a marking layer atop the substrate.

4. A thermally activated, chemically based marking method comprising the steps of:

applying a layer of mixed organic pigment material containing an energy absorbing enhancer to a plastic substrate; and

irradiating said layer with a radiant energy beam having a wavelength selected to excite the energy absorbing enhancer in accordance with the form of a marking to be applied, thereby forming a marking layer atop the substrate.

5. The method of claim 4 further comprising the step of providing a laminar air flow across the substrate during the irradiating step.

6. The method of claim 4, wherein the energy absorbing enhancer further comprises carbon black.

7. The method of claim 4, wherein the radiant energy beam further comprises a laser beam having an energy level ranging between 1 and 30 watts, a spot size ranging between 5 and 200 microns, and a marking speed along the substrate ranging between 25 and 1000mm/sec.

8. The method of claim 4, wherein the layer of mixed organic pigment material further comprises a thickness ranging between 5 and 500 microns.

9. The method of claim 4 further comprising the step of starting at a room temperature of about 70° F.

10. A plastic material as laser marked by the process according to claim 4.

11. A thermally activated chemically based marking method comprising the steps of:

applying a mixed organic pigment material containing an energy absorbing enhancer to a carrier;

placing the carrier in contact with the substrate to be marked; and

irradiating the carrier with a radiant energy beam having a wavelength selected to excite the energy absorbing enhancer in accordance with the form of a marking to be applied, thereby forming a marking layer atop the substrate.

12. A thermally activated chemically based marking method comprising the steps of:

applying a layer of mixed organic pigment material containing an energy absorbing enhancer to a substrate to be marked in the form of a marking to be applied; and

irradiating said layer with a radiant energy beam having a wavelength selected to excite the energy absorbing enhancer, thereby forming a marking layer atop the substrate.

13. The method of claim 12 further comprising the step of providing a laminar air flow across the substrate during the irradiating step.

14. The method of claim 12, wherein the energy absorbing enhancer further comprises carbon black.

15. The method of claim 12, wherein the radiant energy beam further comprises a laser beam having an energy level ranging between 1 and 30 watts and a marking speed along the substrate ranging between 25 and 1000mm/sec.

16. The method of claim 12, wherein the layer of mixed organic pigment material further comprises a thickness ranging between 5 and 500 microns.

17. The method of claim 12 further comprising the step of starting at a room temperature of about 70° F.

18. A glass material as laser marked by the process according to claim 12.

19. A thermally activated, chemically based marking method comprising steps of:

applying a layer having an organic pigment component and comprising an energy absorbing enhancing component to a plastic substrate; and

irradiating said layer with a radiant energy beam having a wavelength selected to excite the energy absorbing enhancing component, thereby forming an adhered layer atop the substrate.

20. A thermally activated chemically based marking method comprising steps of:

applying a material comprising an energy absorbing organic pigment to a carrier;

placing the carrier in contact with the substrate to be marked; and

irradiating the carrier with a radiant energy beam having a wavelength selected to excite the energy absorbing enhancing component in accordance with the form of a marking to be applied, thereby forming a marking layer atop the substrate.

21. A thermally activated chemically-based marking method comprising steps of:

applying a material comprising an organic pigment and an energy absorbing enhancing component to a carrier;

placing the carrier in contact with the substrate to be marked; and

irradiating the carrier with a radiant energy beam having a wavelength selected to excite the energy absorbing enhancing component in accordance with the form of a marking to be applied, thereby forming a marking layer atop the substrate.

22. A thermally activated chemically based marking method comprising steps of:

applying a material including an organic pigment which comprises an energy absorbing enhancing component to a substrate to be marked in the form of a marking to be applied; and

irradiating said layer with a radiant energy beam having a wavelength selected to excite the energy absorbing enhancing component, thereby forming a marking layer atop the substrate.

23. A thermally activated, chemically based marking method comprising steps of:

applying a layer of a marking material comprising at least one organic pigment to a markable substrate comprising at least one plastic; and

irradiating said layer with a radiant energy beam having a wavelength selected to be absorbed by said marking material, thereby forming a bonded layer atop said substrate.

24. The method of claim 23, wherein said organic pigment absorbs radiant energy.

25. The method of claim 23, wherein said marking material further comprises an energy absorbing enhancing component.